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DAVID W. TAYLOR NAVAL SHIP
RESEARCH AND DEVELOPMENT CENTER

Bethesda, Maryland 20084

COMPUTER CENTER

HARRIS 1600 OPERATOR's GUIDE

by

David V. Sommer
&
Sharon E. Good

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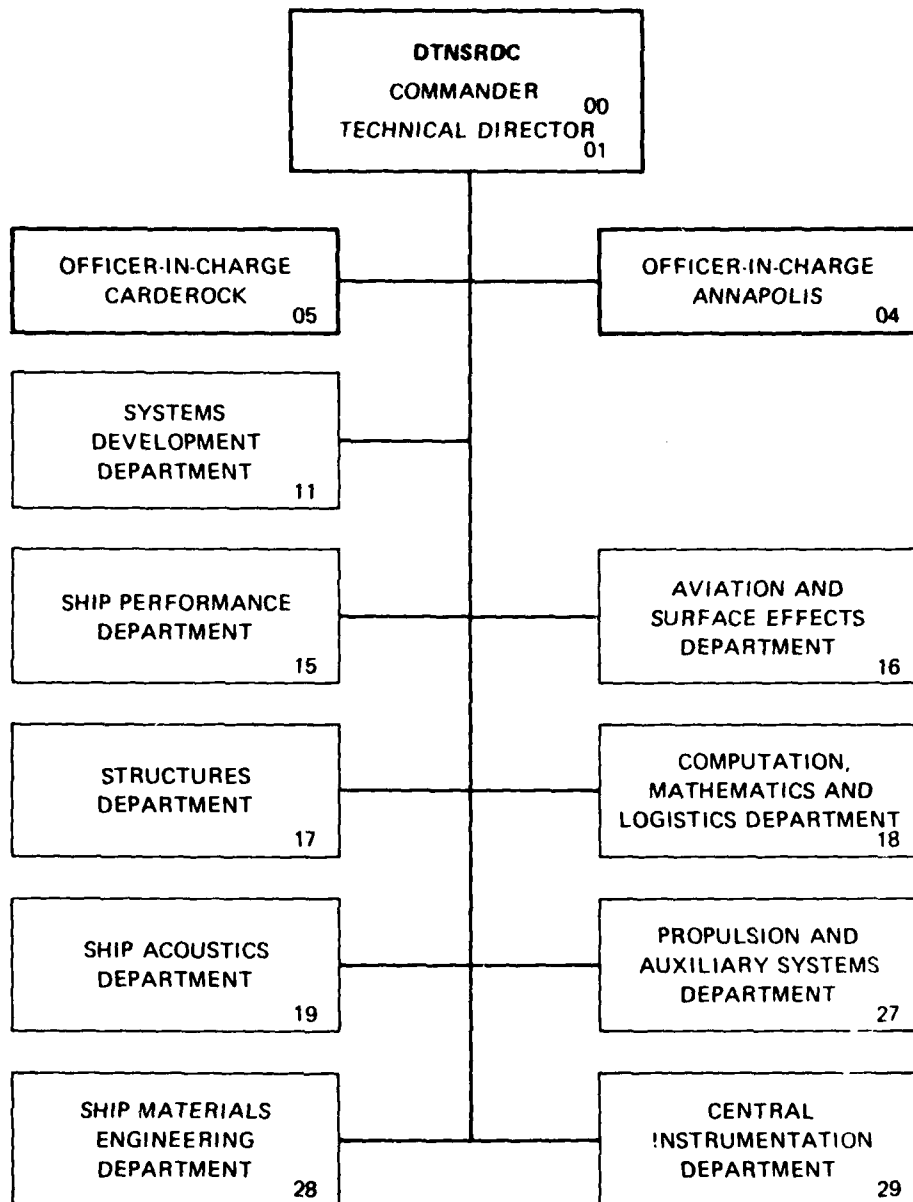Departmental Report

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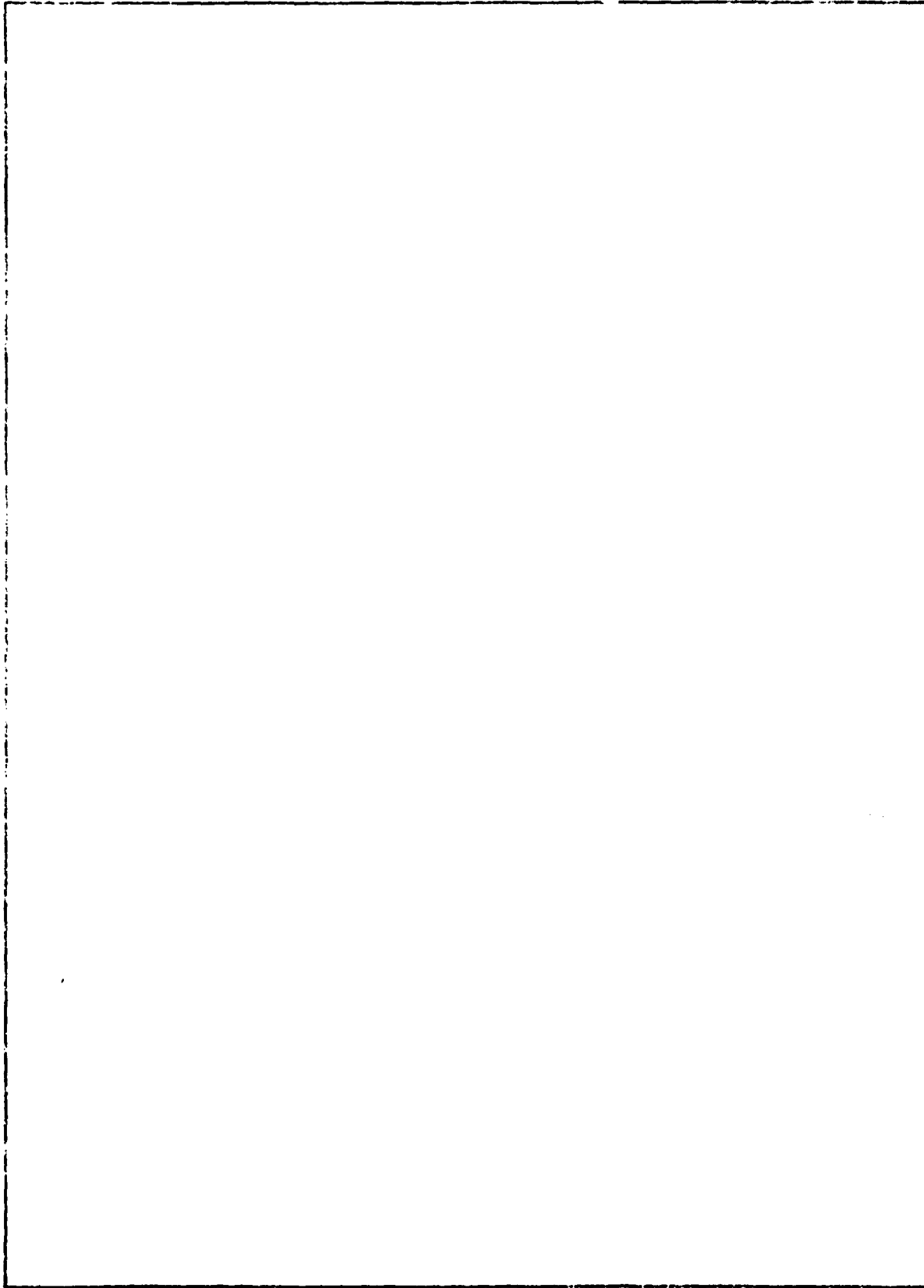
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MAJOR DTNSRDC ORGANIZATIONAL COMPONENTS

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                      │       DTNSRDC        │
                      │   COMMANDER      00  │
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Remote Job Entry (RJE) Terminal
CDC 200UT Emulator
IBM 2780 Emulator

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
The Computer Center Harris 1600 Operator's Guide provides instructions for
the operation of the Harris 1660 Remote job entry terminal when used
to communicate with the CDC 6000/Cyber and Burroughs 7700 computers at
DTNSRDC. Some information has been distilled from many individual documents
and augmented to reflect usage at DTNSRDC. Several Harris utilities
for use locally (for card lists, etc.) and in conjunction with the emulators
are also described.

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David b. Taylor
Naval Ship Research and Development Center
Bethesda, Maryland 20084

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*    Harris 1600 Operator's Guide        *
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by
David V Sommer
Sharon E Good

Code 1892

Phone   (202) 227-1907   (301) 267-3343
Autovon   287-1907   281-3343

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***   PAGE NUMBERING SCHEME   ***

Each chapter in this manual is numbered consecutively starting with page 1, except:

    a) After publication, as additional pages are added, those which are added to the end of a chapter will continue the numbering scheme; those inserted in the middle of a chapter will have .1, .2, etc., added to the page number they are to follow (e.g., 7-6.1 will follow 7-6).

***   NOTATION   ***

Throughout the manual, when a word or phrase is enclosed in broken brackets (e.g., <list>), the <> are not part of the string.

***   REVISIONS   ***

This is the initial version of the Computer Center Harris 1600 Operator's Guide (CMLD-82-15). It is a condensation of information found in various Harris publications, modified to reflect usage at DTNSRDC.

Additional or correction pages will be issued at intervals.

Table of Contents

***** INTRODUCTION *****

The Harris 1600 Remote Communications Processor (RCP) is a computer consisting of a processing unit with 160K bytes of memory, card reader (1000 cpm), line printer (1000 lpm (64 char) or 800 lpm (96 char)), CRT system console, and telecommunications equipment (three asynchronous and four synchronous interfaces).

The 1600's at DTNSRDC are used as medium-speed remote job entry (RJE) terminals for the CDC 6000/Cyber and Burroughs 7700 computers. Emulators make the 1600 appear to be a CDC 200UT, IBM 2780, IBM 3780, or Univac 1004 RJE terminal. Up to four emulators may be run simultaneously under control of the Extended Communications Ope   ing System (ECOS).

ECOS is a multiprogramming system which can run several job   ¬t one time. At DTNSRDC, the ROUTE CARD (RT) utility, which routes c²   to the desired job, and MEDIACON (MC) utility, which is used for | :g cards, normally are run concurrently with up to four emulators.

This Chapter discusses turning the Harris 1660 on and off, getting the operating system going (IPL), and a brief discussion of commands to the 1600.

Chapter 2 describes ECOS conventions used in communicating with the Harris and its running jobs.

Chapter 3 discusses available utilities and some of their commands, with illustrations of typical processes.

Chapters 4 and 5 describe the CDC 200UT and 2780 emulators, respectively, for connecting with a CDC mainframe or the Burroughs 7700. Instructions are given for starting the emulators, specifying emulator options and host commands, spooling, messages, and error procedures. In addition, Chapter 4 shows one way to transfer a file from one CDC mainframe to another using the Harris for intermediate storage.

*** TURNING THE POWER ON ***

The following is the order in which the Harris 1660 must be brought up:

1) CPU
   Press the On/Off button on the Control and Maintenance (C/M) panel. The power indicator lamp should light.

2) Disk Drive
   Press the Start/Stop button on the front of the disk drive. The ready light will flash until the platters are up to speed. Then the light will stay on continuously.

```
------------------------------------
:             CAUTION              :
:                                  :
: While the disk drive ready light :
: is flashing (either during power :
: up  or  power down) DO NOT touch :
: the  system  console.   If   you :
: touch  any  key  on the console, :
: you might destroy  the  contents :
:            of the disks.         :
------------------------------------
```

3) Line Printer
   a) Press the On switch on top of the printer.
   b) Press the Load VF button inside the cover on the left top of the printer.
   c) Press the Run switch on top of the printer,
   d) Re-align the paper, if necessary.

4) Card Reader
   Press the Power On button on the front of the unit.

5) System Console

```
------------------------------------
:             CAUTION              :
:                                  :
: Be sure the disk drive ready light :
: is NOT flashing before  you  touch :
:          the system console.     :
------------------------------------
```

Step 1 should have turned on the system console, too. If not, press the Power switch on the front of the console to the on position. Be sure the Local/Remote switch is set to Remote.

***   INITIAL PROGRAM LOAD (IPL)   ***

To load the system:

1) Power up the system (see page 1-?).

?) Press the following keys on the C/M panel in sequence:

     SGL   DATA   7   INIT

?) When the wait light glows continuously, press LOAD.

The system will spend about one minute loading. After the IPL is
completed, a banner will be displayed on the system console:

     OS ECOS MOUNTED ON DADR1, 0000 BAD FILES, CATALOGED VOLUME

Normally, there will be no bad files and the volume will be cataloged.

The last line to be displayed is

     ENTER TIME AND DATE

4) Enter the time:

     TM hh:mm:ss   (military time -- be exact)

and the date:

     DT mm/dd/yy

     The date and time may be entered in either order.

When the above has been completed, jobs RT and MC are auto-started.

If there are bad files or an uncataloged volume, then steps 5, 6 and/or
7, and 8 must be done.

5) Cancel RT, MC and any other running jobs.

6) If there are any bad files, they must be recovered NOW using
    the RECOVERY utility (page 3-10).

7) If the volume is not cataloged, enter

```
RN CN,JN=CN
/UL VL=ECOS,*
CN NORMAL COMPLETION              << system message
/LK VL=ECOS,*
CN NORMAL COMPLETION              << system message
/ND
SS V                              << should show the volume cataloged
```

8) Restart RT, MC and any other jobs cancelled in step 5.

***   TURNING THE POWER OFF   ***

```
------------------------------------------
:                 CAUTION                 :
:                                         :
: If there is a power failure, DO NOT     :
: power  up the system until the disk     :
: drive has stopped completely (about     :
:               one minute).              :
------------------------------------------
```

The following should be followed to power down the Harris 1660:

1) Log out any connected emulators after reading/printing has completed.

2) Use DA to display all active jobs.

3) Use the CA command to cancel each active job in turn:

    CA <jn>

4) Press SGL on the C/M panel (the Wait light should glow continuously).

5) Press the Start/Stop button on the disk drive.

6) Turn the card reader and line printer off.

7) When the DISK DRIVE READY LIGHT STOPS FLASHING, press the On/Off button on the C/M panel.

***   Harris 1600 Commands   ***

Commands for the 1600 are of three types: ECOS, emulator, central computer. To distinguish where a command is to be directed, ECOS commands have no prefix; other commands are preceded by a special character:

procname	emulator job name	mainframe	cpu	command prefix emulator	command prefix central computer
B2780	BZ(BX)	MFZ	B7700	/	;
UTASC	CB(MX)	MFA/MFB	66/67	+	.
UTASC2	CD	MFD	CY74	-	>
UTASC3	**		any CDC	=	<
VAX (B3780)	**		VAX,IBM	$	X
UTBCD	**	MFA/MFB	66/67	+	.

other job name	program	command prefix
CN	CONTROL utility	/
CP	COPY utility	. (period)
MC	MEDIACON utility	:
RC	RECOVERY utility	*
RT	ROUTE CARD utility	:: in card cols 1-2

Messages from the emulators and central computers are prefixed by the emulator job name.

Only Hollerith cards can be processed; binary cards cannot be read. Decks are assumed to be EBCDIC (029 mode). For emulators which support both 026 and 029 mode, decks must be punched entirely in one mode and a command to the emulator sets the desired mode.

Other utilities may use the same command prefix characters as those listed above.

** - site dependent

***** ECOS *****

*** INTRODUCTION ***

Running of the Harris 1660 RJE terminal is controlled by the
Extended Communications Operating System (ECOS).

This chapter discusses several ECOS customs and commands. ECOS
error codes are also discussed.

***   PERIPHERAL DEVICE CODES   ***

Each peripheral is identified by a 2- or 3-character device code, <dn>. The first character identifies the peripheral type; the second identifies the specific unit of that type.

The following device codes are supported:

    A1,B1,A2,B2,A3,B3 - asynchronous communications interface
                        (no terminals connected to this, yet)

    CF1   - fixed cartridge disk

    CR1   - removable cartridge disk

    DF0   - cartridge module disk (fixed)

    DR0   - cartridge module disk (removable)

    HI   -

    HO   -

    I1,I2,I3,I4   - pseudo input devices

    O1,O2,O3,O4   - pseudo output devices

    P1   - line printer

    R1   - card reader

    S1,S2,S3,S4,S5,S6 - synchronous communications interface

    W1,W2   -

*** JOB NAMES ***

A jobname, <jn>, is 2 characters (first alphabetic, second alphanumeric).

Some values of <jn> are:

BZ - a 2780 emulator for Burroughs 7700

CB - CDC 200UT emulator for MFA/MFB (6600/6700)

CD - CDC 200UT emulator for MFD (CY74)

CN - CONTROL utility

CP - COPY utility

MC - MEDIACON utility

RC - RECOVERY utility

RT - ROUTE CARD utility

***   LOGICAL FILE NAMES   ***

A logical file name, <lfn>, is 1-6 characters (first alphabetic, others alphanumeric).

Some of the values of <lfn> are:

    RDR1   - Card reader.
              (may apply to any input device except
              system console)

    PRT1   - Line printer.
              (may apply to any output device except
              system console)

    RCV   - Receive communications interface.

    XMIT   - Transmit communications interface.

***   FILE NAMES   ***

A file name, <fn>, has the form:

        (qualifier/name.extent(member),password,volume)

where   (...)   the surrounding parentheses are required.

        qualifier/ is 1-8 alphanumeric characters. The first is
                     either alphabetic (for permanent files) or
                     & (for temporary files). The others are
                     alphanumeric. The '/' is required if
                     'qualifier' is present.

        name   is required and is 3-8 alphanumeric characters,
                     first alphabetic.

        .extent   is 1-4 alphanumeric characters, first alphabetic.
                     The '.' is required if 'extent' is present.

        (member)   is 1-8 alphanumeric characters, first alphabetic.
                     This specifies the subfile or partition of a
                     partitioned organization (ORG=PO) file. It does
                     not apply to other file organizations. The '( )'
                     are required if 'member' is present.

        ,password   is not used at DTNSRDC. The ',' is required if
                     'volume' is used.

        ,volume   is 1-4 alphanumeric characters, first alphabetic.
                     It must be used if the file is on an uncataloged
                     volume. An uncataloged volume is one which has
                     not been linked to the master disk (see page 3-3:
                     /LK). The ',' is required if 'volume' is present.

Examples:

    (MYFILE)

    (CCC/DATA)

    (CCC/DATA,MFG)

    (SYSTEM1/PROCLIB.PROC(CB))

    (SYSTEM1/PROCLIB.PROC(CB),,ECOS)

***   SPECIAL KEYBOARD CHARACTERS   ***

<return>   Ends all commands.

<rul out>   Delete entire line being entered.

<back-arrow>   (<shift>-O)
               Backspace one character.

•••   PERIPHERAL COMMANDS   •••

The following commands are used to control peripheral activity:

AR <dn>   Abort the activity on peripheral <dn>.

AC <dn>   Accept the record on peripheral <dn> as good.

AL <jn>,<lfn>=<dn>
               Allocate device <dn> for exclusive use by job <jn> and
               assign device <dn> to logical file <lfn>.

BY <dn>   Bypass (skip) the error record on peripheral <dn>.

DN <dn>   Terminate all activity on peripheral <dn>.

DP   Display the peripheral configuration and status.

OF <dn>   Set peripheral <dn> offline.

ON <dn>   Set peripheral <dn> online.

RE <dn>   Retry read/write on peripheral <dn>.

*** JOB CONTROL COMMANDS   ***

AS <jn> <fn>=<dn>
                Assign peripheral <dn> to job <jn> for use by file <fn>.
                <dn> may also be a Harris file name for spooling.
                (For example,
                    AS CB RDR1=R1   assign to card reader
                    AS BZ PRT1=(MYFILE)   spool printer output to disk

CA <jn>   Cancel job <jn>.

DA   Display all active jobs.

DF   Display the status of all files.

DF <jn>   Display the logical file status for job <jn>.

DT mm/dd/yy   Set the date.

DW   Display all waiting messages.

FX <fn>,JN=<jn>,PARM=(...)
                Execute a job from disk file.

GO <jn>   Resume processing of JCL commands for job <jn>.

RN <mn>,JN=<jn>
                Run procedure with member name <mn>.

TM hh:mm:ss   Set the time.

***   ECOS COMMAND ERROR CODES   ***

error code	meaning
1	Invalid command.
2	Bad JCL proc name.
3	Bad delimiter.
4	Bad keyword.
5	Bad jobname.
6	Bad system member name.
7	No end-of-command (extra data on line).
8	Parameter list too long. -or- Mismatched parentheses.
9	No job is expecting the reply. -or- Wrong special character. (see page 1-1) -or- Wrong message number. (see page 2-8: JW) -or- Message number not followed by a blank.
10	Job not ready for input.
11	Software error. Call systems.
12	Reply too long.
13	Bad device name.
14	Device is being used by another job. -or- Device is still busy with a previous command.
15	Device is not in error. -or- Device cannot execute the command.
16	Bad logical file name.
17	Bad device name in AS command. -or- Bad clear character for lfn assignment.
18	Bad decimal number field.
19	Bad name field in file name.
20	Bad qualifier in file name.
21	Bad extent field in file name.
22	Bad member name in file name.
23	Bad volume field in file name.
24	Bad password in file name.
25	Not at DTNSRDC.

***   I/O ERROR CODES   ***

error code	meaning	error code	meaning
1	Normal completion.	31	Duplicate member in file.
2	Unrecoverable I/O error.	32	Update password not found.
3	Operation aborted.	33	Record sequence error.
4	Illegal disk filename.	34	Duplicate update password.
5	Disk file not found.	35	Invalid member name.
6	Volume not mounted.	36	Illegal protection param.
7	Invalid or missing password.	37	Illegal byte count.
8	FDB already open.	38	File not open.
9	File disposition conflict.	39	Entry out of range.
10	Illegal access type.	40	Empty or nonexistent KSAM directory.
11	Unassigned primary type.	41	KSAM file empty.
12	Too many locate files open.	42	Volume already cataloged.
13	FDB parameter error.	43	Volume not already cataloged.
14	File is not assigned.	44	No catalog defined.
15	Device reserved by another job.	45	Buffer overflow.
16	Device does not exist.	46	Volume names do not match.
17	Device is offline.	47	File size exceeded.
18	Device is assigned to another job.	48	UA size not multiple of 4.
19	No system buffers available.	49	KSAM directory overflow.
20	Invalid logical unit number.	50	Dummy file.
21	Device unassignable.	51	No control program loaded.
22	Duplicate filename in catalog.	52	Invalid host link buffer parameter.
23	Duplicate filename on volume.	53	Required host port not configured.
24	Illegal LRECL.	54	Required host port in use.
25	Illegal file organization.	55	No space on cataloged volume.
26	Illegal max/min allocation.		
27	Illegal record format.		
28	Illegal key parameter.		
29	volume size exceeded.		
30	member not found in file.		

*****   HARRIS 1660 UTILITIES   *****

The following ECOS utilities are described in this chapter:

    CONTROL   - file manipulation

    COPY   - file copy

    MEDIACON   - file copy (small core)
                - list cards

    RECOVERY   - try to recover bad files

    ROUTE CARD - direct each set of cards to its appropriate job

***   CONTROL   ***

The CONTROL utility allows the operator the following file manipulation capabilities:

- Create, delete, rename a file.

- Delete, rename a file member.

- List a VTOC, POAM members, or the catalog.

- Link, unlink a volume.

CONTROL may be executed with or without the LOG option (printer output). The LOG option is required for the CONTROL list commands. It is optional for the others.

```
    RN CN,JN=CN                      no LOG option
    RN CNP,JN=CN                     LOG option
```

CONTROL asks for input with the prompting message:

    CN ENTER CF,DF,RF,DM,RM,KD,LP,LV,LC,AP,DP,LK,UL,ND

The operator responds with:

    /mn

where mn is the command mnemonic. The command must be terminated with *, even if a separate line is required.

Some of the operator commands for CONTROL are:

/CF FN=(filename),*
            Create a local Harris file. Additional parameters are
            available to describe the characteristics of the file.

/DF FN=(filename),*
            Delete a local Harris file.

/RF FN=(oldfilename),F2=(newfilename),*
            Rename a local Harris file.

/DM FN=(filename),*
            Delete a member of a Partitioned Organization (PO) file.
            (Used to delete procs, etc.)

/RM CN=(oldfilename),MN=(newmembername),*
            Rename a member of a PO file.
            (Used to rename procs, etc.)

/LP FN=(filename),*
              List all members of a PO file.
              (LOG option required.)

/LV VL=volumename,*
              List Volume Table Of Contents (VTOC) describing the
              volume and each file on the volume.
              (LOG option required.)

/LC QA=qualifier,*
/LC Q=0,*
/LC,*
              List catalog entries matching the qualifier. Use QA=0
              to list all entries having no qualifier. If QA is
              omitted, the complete catalog is listed.
              (LOG option required.)

/LK VL=volumename,*
              Link a volume (add the volume and all files to the system
              catalog).

/UL VL=volumename,*
              Unlink a volume. The volume need not be mounted.

/ND
              End the CONTROL utility.

**   EXAMPLES   **

1) Delete a file from the directory:

         RN CN,JN=CN
         /DF FN=(filename),*   delete the file
         /ND   end the utility
                                          (or CA CN to cancel it)

    If you forget the "*", enter a separate line with /*.

***   COPY   ***

The COPY utility allows the operator to:

- Create, read, write files of data to and from disk and/or peripheral devices.

- Copy one file to another.

- Move a file, changing its characteristics.

- Dump a file in hex and ASCII, or hex and EBCDIC.

COPY is run by:

        RN CP,JN=CP

CCPY asks for input with the prompting message:

        CP ENTER COPY COMMAND (.)

The operator responds with

        .mn

where mn is the command mnemonic.

    Some of the operator commands for COPY are:

.C   Copy input to output with no change.

.E   End the COPY utility.

.L   List a file. 61 lines per page. Continued lines for
            long records are flagged.

.P   Copy input to output with carriage control in column 1 of
            each line.

A few of the parameters for COPY commands are:

DISP=output-disposition

        Declare the disposition of the output file.
        (i.e., replace (DISP=OLD or DISP=REPLACE); append
        (DISP=MOD); create (DISP=NEW)).

        CAUTION: DON'T make additions to a POAM member using
        DISP=MOD. It may replace instead of append.

        (Default: DISP=MOD)

IN=<dn>
IN=(filename)

        Input device or file.
        (Default: IN=R1)
        (Synonym: IP=)

N=count
N=(first,last)

        COPY will process selected records.
        (Use last=0 for end-of-file.)
        (Default: N=(1,0))

OUT=<dn>
OUT=(filename)

        Output device or file.
        (Default: OUT=P1)
        (Synonym: OP=)

RL=<number>

        Truncate line to <number> characters.

**   EXAMPLES   **

1) Print a disk file:

```
        RN CP,JN=CP
        .P IN=(filename),OUT=P1          file has carriage control
          -or-
        .C IN=(filename),OUT=P1          file has no carriage control
        .F                               terminate COPY
```

2) Copy EBCDIC cards to disk:

```
        RN CP,JN=CP
        ON R1
        .C IN=R1,OUT=(filename)
        .  ORG=LS                        logical sequential
        .  FMT=(F,F)                      fixed length unblocked
        .  DISP=NEW                       create a new file
        .F
```

The command may be entered on one line:
```
        .C IN=R1,OUT=(filename),ORG=LS,FMT=(F,F),DISP=NEW
        .F
```

3) Add a proc to PROCLIB using COPY:

```
        RN CP,JN=CP
        .C IN=ME                         input from system console
        .  OUT=(SYSTEM1/PROCLIB.PROC),DISP=OLD
        ,./ ADD NAME=X3
        ,EX (X31)
        .E
```

Note: Period (.) is the prefix for COPY commands; comma (,) is the
      prefix for COPY data.

4) Add two (or more) procs to PROCLIB with a single execution of COPY:

```
        RN CP,JN=CP
        .C IN=ME,OUT=(SYSTEM1/PROCLIB.PROC),DISP=OLD
        ,./ ADD NAME=procname1
        ,MS      statements for this proc
        .S                               signal end of this proc
        ,./ ADD NAME=procname2
        ,MS      statements for this proc
        .S                               end COPY utility
```

Note: Terminate each proc with .S . Use .E after the last proc.
                                   (or CA CP to cancel it)

***   MEDIACON   ***

MEDIACON (MEDIA CONversion) copies data from one Harris local disk file or peripheral to another, using a minimum of main memory. Any type data file can be processed.

MEDIACON is normally used for listing cards. Note that cards are assumed to be EBCDIC, therefore, 026 decks will not list as expected. A special version of MEDIACON which accepts both 026 and 029 card decks is described on page 3-9.

MEDIACON uses input file IP and output file OP, which may be assigned by the operator. If not assigned by the operator, IP is assigned to R1 (card reader 1) and OP is assigned to P1 (printer 1). The operator may also specify whether column one of the input is to be treated as carriage control.

MEDIACON is started automatically at IPL time. It may be (re)executed by one of:

        RN MC,JN=MC

or

        EX (MEDIACON),JN=MC

    MEDIACON recognizes five operator commands:

        :A
        :A BL=0 - Copy with ANSI carriage control.
                  Reserve no buffers.

        :A BL=1 - Copy with ANSI carriage control.
                  Reserve one buffer each for input and output.
                  (MEDIACON will run faster, but other jobs may
                  be slower.)

        :E   - End execution.

        :F
        :F BL=0
        :F BL=1 - Copy with FCOS carriage control.
                  Reserve 0, 0, or 1 buffers, respectively.

        :L
        :L BL=0
        :L BL=1 - Copy without carriage control.
                  Reserve 0, 0, or 1 buffers, respectively.

        :S   - Stop the current copy immediately.

**   EXAMPLES   **

1) 80/80 list of EBCDIC cards:

```
    RN MC,jn=MC                        if not already active
    :L                                 list EBCDIC cards
    :F                                 end execution
```

The deck to be listed must have the following as its first card:

```
    !!MC
```

to tell ROUTE CARD to route the cards to MC. If the printer is
already open under another job (emulator), an error message will be
displayed. Close the printer for the other job and start over
(terminate the card reader with an ECOS EOF card (!!) caro and put
the cards in again). MC will release the printer when it is
finished.

**   MEDIACON RETURN CODES   **

*   OPEN/CLOSE   *

The following I/O return codes (page 2-10) may occur when running
MEDIACON: 2-6, 9-11, 13-23, 29, 30.

If errors 9, 10 or 13 occur, MEDIACON cannot copy the file. Use
the COPY utility.

*   GET/PUT   *

error code	meaning	action
2	Unrecoverable I/O error.	Retry. If error repeats, may be hardware error.
7	Get/put not allowed.	MEDIACON cannot copy, use COPY utility
9	Volume size exceeded.	Reassign to another volume.
10	File size exceeded.	Reassign or delete disk file and recreate it with a larger maximum size.

***   DTNSRDC MEDIACON   ***
(DTMC)

A special COBOL version of MEDIACON for DTNSRDC allows 026 or 029
input. It is longer and slower than the system MEDIACON. It may be
be used to list cards or to move cards to the Harris disk.

To execute DTMC, cancel the running MC, then:

        RN DTMC,JN=MC

or

        FX (DTMCF),JN=MC

DTMC requires setting for 026 or 029, formatted (with headings) or
unformatted (80/80 copy).

**   EXAMPLES   **

1) List an 026 Deck:

        CA MC   if the special MC is not loaded
        RN DTMC,JN=MC
    (1) 01 F26   set for 026 formatted

    Place the deck preceded by !!MC in the card reader, teminated by !!.
    Press RESET on the card reader.

2) Spool 026 deck to Harris disk (output is 029):

    (1) 01 026   set for 026 unformatted
        AS MC,P1=(filename)

    Place deck in card reader as in example 1.

----

(1) - The '01' prefix indicates the data is to be sent to the first
      COBOL program in the system. If DTMC is not the first COBOL
      program, replace the '01' by the correct number.

***   RECOVERY   ***

The RECOVERY utility tries to recover data and disk allocation for
files marked bad by the file system.

   A file may be marked bad by:

   - system failure   (open for output or update when there is a
                            system crash)

   - I/O error

   - file left open   (open for output or update and the disk volume is
                            not closed before the next IPL)

```
        ---------------------------
        :          CAUTION          :
        :                           :
        : DO NOT run any other jobs :
        : while RECOVERY is running :
        ---------------------------
```

   RECOVERY validates each bad file by verifying:

disk allocation
                Each unit of allocation (UA) is verified against the UA
                bit map. If there is an error, the file is truncated
                to the last validated UA. In this case, the invalid
                area is lost and can be recovered only by some sort of
                garbage collection process.

VTOC entry
                Checks for flags possibly set:
                - create in progress   (deallocates disk space)
                - delete in progress   (deallocates disk space)
                - deallocation in
                  progress   (resets the flag)
                - directory build in
                  progress   (flag is left on to allow key
                                          directory to be rebuilt after
                                          data verification)
                - temporary file   (deletes the file)

----
after VTOC verification for each file, do NOT delete the file
----

file data
                Validates forward and backward chain pointers, record
                lengths, partitioned directory (if ORG=0) of data.

The following questions may appear:

    FILE TO BE DELETED?   always answer *n

    MODIFY BACK CHAIN POINTER?   always answer *y

    WRITE EOF FOR FILE?   always answer *y

    PRINT RECOVERY LOG FILE
    ON ASSIGNED DEVICE?   always answer *y
                                     (this is the only record of the
                                     recovery process)

    RECOVERY is run alone (no other programs running) by:

        RN RC,JN=RC

or

        EX (RECOVERY),JN=RC
        AS RC,PRINT=P1

***   ROUTE CARD   ***

The ROUTE CARD utility allows a single card reader to be used by more than one job running under ECOS. The card reader is assigned to the ROUTE CARD utility which is connected via pseudo devices to one or more jobs. A special card in front of each group of cards tells Route Card which job is to receive the cards.

ROUTE CARD is started automatically at IPL time and uses pseudo-device pairs I1/O1, I2/O2, I3/O3, respectively, for up to three jobs (emulators and/or MEDIACON).

In addition, ROUTE CARD may be (re)started at any time using one of:

        For any job mix:

        FX RTINIT,JN=RT,PARM=(<jn1>,...,<jnn>)

        where <jni> are 2-character job names to which ROUTE CARD
                     will route data cards. At least one jobname
                     must be specified.

        For site default:

        RN RT,JN=RT

        where the following are the site defaults:

            Annapolis   - PARM=(BZ,CB,MC)
            CMLD 189   - PARM=(BZ,CB,CD,MC)
            Financial Mgt   - PARM=(BX,MX,MC)
            NAVAIR   - PARM=(VC,MX,MC)
            Structures   - PARM=(BZ,CB,CD,MC)

ROUTE CARD recognizes three types of cards:

    RT control cards   (!! in columns 1-2 and
                         a 2-character job name in 3-4)

    ECOS EOF cards   (!! in columns 1-2 and
                         blanks in columns 3-80)

    data cards   (any card not one of the above)

Data cards following an RT control card are passed to the specified job until another RT control card or ECOS EOF card is encountered.

    ROUTE CARD recognizes two operator commands:

        @AB - Close all files and terminate ROUTE CARD.

        @CR - Cancel the current data cards being read. Processing
              continues at the next RT control card or EOF card.

*****   CDC 200UT EMULATOR   *****

***   INTRODUCTION   ***

The Control Data Corporation (CDC) 200 User Terminal (200UT) is a medium speed remote job entry (RJE) terminal with card reader and line printer.

All cards must be either EBCDIC (029 mode) or BCD (026 mode). On 200UT, this is controlled by a switch on the card reader; on the Harris, it is a dynamic emulator option.

Currently, the line printer is limited to 132 print positions (plus carriage control). Longer lines are truncated!

*** STARTING AN EMULATOR ***

The following steps should be followed to use a CDC 200UT emulator:

1 - Turn the power on.

2 - Load the desired emulator.

3 - Set required options.

   3a - Set other options, if desired.

4 - Enter GO (preceded by the proper emulator character).

5 - Dial the computer.

6 - Type LOGIN to log in (preceded by the proper emulator character).

7 - Normal INTERCOM processing.

8 - Type LOGOUT to log out (preceded by the proper emulator character).

9 - Cancel the emulator.

***   LOADING AN EMULATOR   ***

All emulators are normally run in conjunction with ROUTE CARD and are started using one of the following:

emulator job name	mainframe	cpu	execute statement
CB	MFA/MFB	66/67	RN UTASC,JN=CB
CD	MFD	CY74	RN UTASC2,JN=CD
**		any CDC	RN UTASC3,JN=**

To run without using ROUTE CARD, for example:

```
CA RT                      cancel ROUTE CARD
RN UTASC3,JN=CF
AS CF RDR1=P1
AS CF PRT1=P1
```

An ECOS EOF card (::) is required to close the printer. ROUTE CARD control cards must not be used.

** - site dependent

***   SPECIFYING OPTIONS   ***

When the word *OPTIONS?* appears, any of the following emulator
commands may be entered. Each command must be preceded by the
appropriate emulator prefix (see page 1-1).

(The commands are illustrated using the character for emulator CB.)

```
    emulator
    command               description                    default
    --------     ------------------------------------    -------
      +ES        Enable 026 mode.                          +E9
      +E9        Enable 029 mode.

      +EF        Enable forms code.                        +EF
                 (column 1 is carriage control)
      +DF        Disable forms code.
                 (column 1 is data)

    +SA,nn       Set site address in terminal.           x'71'
                 (BCD: nn=70; ASCII: nn=71)
```

These options may be changed at any time while the emulator is running.

***   ADDITIONAL EMULATOR COMMANDS   ***

```
    emulator
    command                description
    --------     ---------------------------------------
      +CP        Close Line Printer (output file).

      +CR        Close card Reader (input file).
```

***   CDC 200UT EMULATOR MESSAGES   ***

The following messages may appear during operation of the CDC 200UT emulator:

Message	Meaning
CB BAD CH	Illegal character message.
CB BCOF	Communication buffer overflow.
CB BPAR	Blocking parity error.
CB CAR	Loss of modem carrier detected.
CB CPAR	Character parity error.
CB DIVERT	Divert message.
CB ERR	Invalid command..
CB GAP	Communication buffer with unrecognizable data.
CB MODI	Input modem lost.
CB MODO	Output modem lost.
CB NAK	Negative acknowledgement of last communication buffer.
CB NOBUF	No buffer available.
CB ONLINE	Emulator is online and ready for communications.
CB ORUN	Receive data overrun.
CB PRT1 END	Output file closed.
CB PRT1 OPN	Output file opened.
CB RDR1 END	Input file closed.
CB RDR1 OPN	Input file opened.
CB RESTART	Emulator restarted.
CB RTO	Receive time-out.
CB TRNC	Print line was truncated.
CB URUN	Processor and line not in sync.
CB WTO	Output modem failed.

***   CANCELLING AN EMULATOR   ***

To cancel an emulator, enter

     *OFF,LP1   close host print queue

     +CP   close the printer

     CA <jn>

where <jn> is the emulator job name: CH, CO.

***   CARD READER   ***

Fach NOS/BE job starts with a job card and ends with a 6/7/8/9
card.   Jobs may be stacked.   An FCOS end-of-file card (!! in columns 1
and 2) must follow the last job.   When ROUTE CARD is supporting the CDC
emulator(s), a '!!<jn>' card (e.g., !!CB) must precede the first or
only job card.

   Fnter

     *READ

to initiate reading (see page 1-1 for the other central computer
prefix characters).

   If ECOS makes a request for assignment, it may be necessary to
enter *GO, *C and/or another *READ to resume reading.

   If the card reader becomes not ready while reading, the message

     CB DEV ERR R1

is displayed.   Reading resumes when the card reader again becomes
ready.

**   READ ERRORS   **

If the first card is not a valid job card, the message

    CB JOB CARD ERROR

is displayed. Before restarting the reader with a new deck, enter

    *END,CR
    *CR

Note: The card reader will have read 24 cards.

If an illegal FBCDIC character code is detected, the message

    CR ILC P1

is displayed. Either

- Correct the last card read and put back into hopper.
  Then enter

    RE R1

to resume reading the job deck.

- Enter

    *END CR
    *CR

to discard the job with the bad card. To read another job, enter

    *READ

***   LINE PRINTER   ***

To start printing, enter one or more of:

    *ON,LP1   to be sure the printer is logically on

    *GO   if it has already started printing

    *C   if it stops printing

(see page 1-1 for the other central computer prefix characters).

If the line printer becomes not ready while printing, the message

    CB DEV ERR P1

is displayed. Printing resumes when the line printer again becomes
ready.

**   PRINTER ERRORS   **

If an uncorrectable parity error occurs while printing, the message

    CB CPAR

is displayed. The 1600 will attempt to continue. If it cannot, the
message is displayed again. Either reposition the file or terminate
the printing.

***   SPOOLING   ***

**   INPUT   **

The following steps are used to spool output from Harris local disk
to the CDC input queue. (See MEDIACON (pages 3-7, 3-9) for disk file
creation.)

```
    DF CB                    see if RDR1 is open
    OF I1                    omit if not open
    AB I1                    omit if not open
    +F9                      all disk files are 029
    AS CB,RDR1=(filename)
```

then

```
    *READ                    may also require  *GO,CR1  to complete the
                             transmission
```

Reset to card input by:

```
    +F6                      if standard mode is 026
    AS CB,RDR1=I1
    ON I1
```


**   OUTPUT   **

The following steps are used to spool output to Harris local disk
for printing at a later time:

```
    *OFF,LP1                 close host print queue
    +CP                      close printer
    *H.C                     show all jobs to be spooled to a
                             single disk file on Harris 1660
    +F                       terminate H,0 regeneration
    AS CB PRT1=(filename)    printout will go to this file
    +DF                      disable forms code
                             (can be re-enabled later)
    *ON,LP1                  open host print queue
    +GO                      start printing (spooling to disk)
```

Wait until complete (usually a line with just CB is displayed), the

```
    *OFF,LP1                 close host print queue
    +CP                      close printer disk file
(1) AS CB PRT1=P1            restore output to line printer for the
                             next user
(1) +EF                      enable forms code
```

This disk file is now suitable for printing by COPY (3-6) or
MEDIACON (3-7).

----

(1) - It is important that you leave the emulator in the same status as
you found it, if possible.

*** INTERCOM REMOTE BATCH PROCESSING COMMANDS ***

The following commands are available for processing batch jobs and output files. Each command must be preceded by a central computer prefix (see page 1-1). The commands are illustrated with the prefix for CB.

Card Reader

*ON.CR1	Turn card reader on.
*OFF.CR1	Turn card reader logically off. ON.CR1 is required before reading may resume.
*END.CR1 *E.CR1	End card reading.
*CONTIN *C	Resume reading when transmission was stopped because a message was received (and is displayed on the CRT).
*READ	Read cards into the input file for this terminal.
*WAIT.CR1	Temporarily halt card reading. To resume, use *GO.CR1.

Printer

*ON,LP1 *ON	Turn the line printer on. Must be the first command after login.
*OFF,LP1 *OFF	Turn the printer logically off. ON,LP1 is required before printing may resume.
*END,LP1 *E,LP1 *END *E	End printing. Discard the remaining output. *GO,LP1 to print the job's dayfile. Ignore repeat count, if any. A second END,LP1 will stop printing the dayfile.
*GO,LP1 *G,LP1 *GO *G	Resume printing after wait or some error conditions.
*CONTIN *C	Resume printing when transmission was stopped because a message was received (and is displayed on the CRT).
*BSP,LF1,N *BSP,,N *BSP	Backspace line printer n (times 10 octal) sectors. (default: 1 (10 octal sectors))
*REP,LP1,M *REP,,M *REP	Reprint m (octal) additional copies (default: 1; max: 37 octal). The repeat count (RC) is cumulative (i.e.,*REP,,2 followed by *REP,,3 is the equivalent of *REP,,5). M may not be negative.
*REW,LP1 *REW	Rewind the print file and turn printer logically off. ON,LP1 is required before printing may resume. The residual repeat count is saved.
*RTN,LP1 *RTN	Rewind the print file and return it to the output queue. The residual repeat count is saved.
*WAIT,LP1 *WAIT	Temporarily halt printing. To resume, use *GO,LF1.
*DEFINE,LP1,FCxx *DEFINE,,FCxx	stablish forms code for printer (xx is the forms code, e.g., 1T (see page 2-13)). The printer must be prepared before this command is issued.
*DEFINE,LP1 *DEFINE	Restore default printer settings. The printer should be restored before this command is issued.

Printer and Card Reader

*WAIT.ALL	Temporarily halt reading and printing. To resume, use *GO.

*GO,ALL
*6,ALL
	Resume reading and/or printing which was halted by wait. also required, with or without equipment, when any of the following errors have occurred:
	    DEVICE NOT READY
	    JOB STATEMENT ERROR
	    INPUT FILE ERROR
	    OUTPUT FILE ERROR

*CONTIN *C	Resume reading and/or printing when transmission was stopped because a message was received (and is displayed on the CRT).

Queue and Status Displays

*-	Terminate automatic updating of the H displays.
*H,I	Display input queue for this terminal.
*H,C	Display output queue for this terminal.
*H,F	Display jobs in execution for this terminal.
*H,S	Display current status of this terminal's I/O devices.
*H,P	Display punch queue for this terminal. (Jobs in the punch queue must be diverted to a high-speed terminal or central site for punching. See below.)

Manipulating Queue-resident Files

In the following commands, jobname is the name of the job/file affected. It may be the 7-character job name or the last 2 characters of the NOS/BE job name. Each command must be preceded by a central computer prefix (see page 1-1). The commands are illustrated with the 6600/6700 prefix.

*DIVERT,jobname,id,q
          Transfer files/jobs to another location.
          jobname - name of job to be transferred.
          id   - ID of terminal to receive diverted job. If
                    omitted, divert to central site.
          q   - divert jobs from this queue only. q may be
                    O (print), P (punch), I (input), or omitted
                    (all queues).
          Examples: DIVERT,XXXXOR7,555,O   divert print file
                                            XXXXOR7 to terminal 555.
                     DIVERT,R7,,P   divert punching of job R7
                                            to central site.

*DROP,jobname
          Drop a job while it is in execution. Any output is placed
          into the output queue.

*EVICT,jobname,q
          Eliminate job from specified queue. q may be I (input),
          O (print), P (punch), or omitted (all queues).

*PRIOR,jobname,p,q
          Change priority of a print or punch file. p is a 1- to 4-
          digit positive octal number defining the new priority.
          Jobs with priority 0000 will remain in the queue. q may
          be O (print), P (punch) or omitted (print and punch).

Some Error Messages

COMMAND IGNORED

Command cannot be processed. (E.g., *OFF,LP1 cannot be
executed when the printer is already off.)

COMMAND REJECT

Either *GO or *ON command must be entered before other
commancs may be processed.

CRn,jjjjjjj,INPUT FILE ERROR

Errors in creating input file. Job jjjjjjj is dropped
from the system. Check cards for errors. *END,CR and try
again.

CRn,jjjjjjj,SHIFTED DATA,INPUT FILE ERROR

A card was read incorrectly. To proceed: *END,CR1;
check for a damaged card in the last group read and fix;
put an EOI card (6/7/8/9) in front of the job card (for
safety) and *GO,CR1 to read complete deck.

CRn,jjjjjjjjjj,JOB CARD ERROR

Job card is incorrect. jjjjjjjjjj is the job name or the
first 10 characters of the job card. Return to user for
correction.

CRn,NOT READY

Place more cards (or an end-of-file card) in reader.
Press load. Enter *GO,CRn.

INPUT SUSPENDED BY SYSTEM

System input queue is overloaded. Reading resumes
automatically when overload condition ends. (Printer must
be logically on.)

LPn,NOT READY

Correct condition. Ready printer. Enter *GO,LPn.

*** Transferring Files from CDC to CDC ***

To move a file from one CDC mainframe to another, the user puts the file into the output queue of the source computer. The Harris operator spools the output from the source computer to local Harris disk. The Harris operator then switches to the object computer and makes the spooled disk file a local file and catalogs it on the object computer and purges the Harris disk file.

When spooling to disk, all output files are concatenated and put into a single disk file. Therefore, the file to be transferred must be the only file in the output queue.

Example

1. Move the accounting information from the Annapolis Cyber 74 (MFG) to the 6600 (MFB). Special terminal ID <tid> has been established to insure that there will be no other files in the output queue.

   1a. The job which gathers the accounting information puts it into the output queue for <tid>:

        ROUTE,<acctfyl>,DC=PR,TID=<tid>.

   1b. The Harris operator activates the emulator using a special procedure and logs into MFG:

```
        CA RT                  << cancel ROUTE CARD
        CA MC                  << cancel MEDIACON
        RN ACCTG,JN=AG
        *SA,71
        *DF
        *:9
        *CP                    << close printer
        *GO
        AS AG,PRT1=(ACCTG)     << assign printer to disk
        *ON,LP1                << start spooling
        *GO                    << (or *C) may be required
        AS AG,PRT1=P1          << after spooling complete,
                                  re-assign to printer
        *OFF,CR1               << before switching to MFB
```

Note that ROUTE CARD (and MEDIACON) should be cancelled.

1c. The Harris operator logs out of MFG and logs into MFB:

Type the following:

```
*OFF,CR1                << tell CDC to ignore card reader
OF I1                   << if open (OF AG to check)
AB I1                   << if open
*F9                     << disk must be EBCDIC (029)
AS AG,RDR1=(ACCTG)      << assign card reader to disk

*READ,ACCT              << will read Harris file (ACCTG)
                           and make it a local file ACCT
                           on MFB
*GO,CP1                 << only if host rejects *READ,ACCT
                        << may also require another
                           *READ,ACCT
*CATALOG,ACCT,....      << to catalog the file on MFB
```

When done, purge the Harris file (ACCTG):

```
RN CCNTROL,JN=CN
/DF FN=(ACCTG)     << to purge the file
/ND                << to terminate CONTROL
```

and cancel the emulator:

```
CA AG
```

*** SYSTEM GENERATION PARAMETERS ***

option	UTASC	UTASC2	UTASC3	UTRCD
LINECODE	extbcd			
*KEYPUNCH	switchable			
*AUTOREAD	no			
TYPESA	no			
*SITEADDR	71	71	71	70
ILLCHAR	yes			
ALERTS	switchable			
*DIAGWRIT	no			
COMBUFFS	4			
MSGID	*	>	<	*
TERMID	+	-	=	+
ECOS	yes			
CONBUF	57			
LOGSIZE	7			
UTNAME	CB	CD	**	**
PLOTROUTE	no			
PRT_BUF_LVL	1			
RDR_BUF_LVL	1			
STOP_MSGS	no			
SIX79_CARD	no			

** - site dependent

***** BURROUGHS 7700 EMULATOR *****

*** INTRODUCTION ***

The IBM 2780 is a very limited RJE terminal which has no keyboard
and no screen. Therefore, all messages from the host come as lines on
the Harris printer. If the printer is busy, the messages are spooled
and de-spooled automatically.

Some B7700 commands may be entered from the system console or card
reader. When entered from the card reader, the ";" prefix is not
allowed since ROUTE CARD directs the cards to the proper emulator.

***   STARTING THE EMULATOR   ***

The following steps should be followed to use the B7700 emulator:

    1 - Turn the power on.

    2 - IPL the system.

    3 - Load the emulator: RN B2780,JN=BZ

    4 - Set options:
         /AU

    5 - Enter /GO to start the emulator.

    6 - If the terminal is dial-up, dial the computer.

    7 - Log in to the B7700 from the system console or card reader.

        From the system console:

        ;/ <usercode>/<password>/RJE2780nn.

            where nn is 00 - GSA
                        01 - NAVAIR
                        02 - Financial Mgt   (hardwired)
                        03 - Annapolis   (hardwired)
                        04 - CMLD 189   (hardwired)
                        05 - Structures

        From the card reader:

        Put the following cards in the card reader:

            !!BZ
            / <usercode>/<password>/RJE2780nn.
              (nn is described above)
            !!

        Type /XN to start reading the cards. A heading (one
        or more lines) should print on the printer if the log in
        was successful.

    When the login is complete, the following line is printed on
    the line printer:

        B7700 SYSTEM/RJE2780 GSA.77A SYSTEM #168
        <lsn> LOGGED ON AT hh:mm:ss mm/dd/yy SESSION #1xno

8 - Process card decks and printouts.

Card decks:

```
!!BZ
  (card deck(s))
!!
```

Type /XN to start reading. If it seems to be stuck,
try /ET to end the transmission and /XN to restart
it.

When a job is read in, it is processed by the WFL
compiler. If the job is syntactically correct, it goes
into the input queue; if not, it is rejected. In either
case, your log of the WFL run is printed on the printer
and the user will have a printout (eventually).

Printouts:

Each job starts with a single page having five banners:
    1 - user initials
    2 - job order number
    3 - job mix number
    4 - job name
    5 - lsn number
and a date and time stamp.

Each job ends with a banner page which says END and has
RJF and the job mix number on all lines.

Following the END page is a page with the log of the
print operation. Each site determines what is to be
done with this page.

    Annapolis: This page will be date/time stamped by
               Operations, signed by the user to show he
               picked up the output, and retained by
               Operations.

9 - Interrupt printouts:

- Press stop button on the printer.
- Type   /ET   to signal printer to wait.
- After about 10 seconds press start button on printer.
- Printer will complete the current buffer and wait.
  - If it resumes printing, repeat the above steps.

Then:

To read in a deck of cards:

- Put the card deck in the reader, press reset button
  on the reader.
- Type   /XN   to complete the reading.
- Printer will automatically pick up where it left
  off.

To cancel a print job while printing:

- Type   ;/*CL LP   to clear the printer.
- Printer will put END banner immediately and discard
  that job.

To start a printout again:

- Type   ;/*QT LP   to quit the printer
         ;/*PB   to resume printing.

10 - Type   ;/*BYE   to log out.

When the logout is complete, the following message will be
printed on the line printer:
     <lsn> LOGGED OUT AT hh:mm:ss mm/dd/yy

11 - Cancel the emulator.

***   LOADING AN EMULATOR   ***

The emulator is normally run in conjunction with ROUTE CARD and is started using:

emulator job name	mainframe	cpu	execute statement
BZ	MFZ	B7700	RN B2780,JN=BZ

To run without using ROUTE CARD, some other assignments are necessary.

*** SPECIFYING OPTIONS ***

When

    BZ 2780 810.1
    BZ OPTIONS

appears, any of the following emulator commands may be entered. Each
command must be preceded by the emulator suffix.

emulator command	description	default
/AP	Abort use of print output file.	
/AU	Abort use of punch output file.	
/GO	Signal that all options have been entered.	

** Harris-to-Harris **

The 2780 emulator is also used to communicate between Harris
terminals.

emulator command	description	default
/TT	Terminal-to-terminal operation.	/TC
/TC	Terminal-to-cpu operation.	
/PT	Primary terminal emulator.	/ST
/ST	Secondary terminal emulator.	
/BR	Basic record transmission.	/MR
/MR	Multiple record transmission.	

***   B2780 EMULATOR COMMANDS **

The following are the B2780 run-time emulator commands:

emulator command	description
/AP	Abort Print file.
/DR	Default Route output.
/ET	End Transmission.
/GV	Go Voice (Site operator attention).
/PR	Route all output to PRint file.
/XM	Transmit transparent data.
/XN	Transmit non-transparent data.
*msg	Route Message to B7700 computer.
/SP	Set Print tape option on.
/NP	Set Print tape option off (Not on).

***   B2780 EMULATOR MESSAGES   ***

The following messages may appear during operation of the B2780 emulator:

Message	Meaning
BZ ABT in	File closed, but not completed.
BZ BCOF	Communication buffer overflow.
BZ BEL	Go voice bell.
BZ BTO	Bid time-out; no response from other site to line bid.
BZ CAR	Loss of modem carrier detected.
BZ CRC	Communication buffer with CRC errors.
B7 DCHK	Communications buffer data check.
A7 DISC	Automatic disconnect.
A7 EOT	End-of-Transmission. Emulator entered listen mode.
BZ ERROR	Operator command entered erroneously.
BZ GAR	Communication buffer with unrecognizable data.
B7 ING	Input not granted.
BZ INIT COMPLT	Initialization complete.
BZ MTO	Message time-out.
B7 NAK	Negative acknowledgement of last communication buffer.
AZ NLI	Not listening indication. Emulator did not expect data.
B7 ONLI	B2780 is online and ready for communications.
BZ OPTIONS	Request for operator to enter any initialization options.
A7 ORUN	Receive data overrun.
9Z RCV	Emulator is in receive mode.

*** CANCELLING AN EMULATOR ***

To cancel the P7700 emulator, enter:

CA BZ

***   REMOTE BATCH PROCESSING COMMANDS   ***

The following commands are available for processing batch jobs and
output files. Each command must be preceded by a central computer
prefix (;).

;/* BACKUP

List print files, number of pages and, if appropriate,
the form required.

;/* BACKUP <print queue entry>

Show print files for specified job, subset of a job,
or a specific output file.

;/* BYE

Log out.

;/* C-

Display print queue information:
- queue number
- file name and page number currently printing
- copy number being printed (if more than one copy)

;/* CF <print queue entry>

Same for specified job.

;/* CF <print queue entry> SAVE

Save the print file after printing.

;/* C- <print queue entry> COPIES=n

Print n copies of specified print file.

;/* CF <print queue entry> CONTINUE

Continue interrupted printout, regardless of setting of
CONTBACK (see *SO, *RO).

;/* CF <print queue entry> RESTART

Mark specified job to be restarted rather than continued,
regardless of setting of CONTBACK (see *SO, *RO).

;/* CF <print queue entry> + n
;/* CF <print queue entry> - n

Continue interrupted printout starting + or - n pages.

;/* CL LP

Stop printing the current file and purge it from the
directory.

;/* LC text

Put a message into the system log.

;/* PH

      Resume AUTOPRINT.

;/* PB <job number>
      Start printing the specified job.

;/* PB -<job number>
      Remove the specified job from the print queue.

;/* QT LP

      Stop printing the current output file and leave it in the
      directory. The PB command must be used to print this
      file.

;/* RO AUTOBACKUP
      Do not start printing output files. (see *SO, *TO)

;/* RO CONTBACKUP
      If a listing is interrupted, it will resume at the
      beginning. (see *SO, *TO)

;/* SB <job number>
      Print specified job at central site.

;/* SO AUTOBACKUP
      Start printout output files. (see *RO, *TO)

;/* SO CONTBACK
      If a listing is interrupted, it will be resumed close to
      or before the point of interruption. A separate banner
      with CONT will precede the continued printout. (see *RO,
      *TO)

;/* SP

      List of job numbers in the print queue.

;/* TO

      Display options set. (see *SO, *RO)

***   CARD READER   ***

Each B7700 job starts with a BEGIN JOB card and ends with an END JOB
card. Jobs may be stacked. An ECOS end-of-file card (!! in columns 1
and 2) must follow the last job. When ROUTE CARD is supporting the
B7700 emulator, a '!!<jn>' card (e.g., !!BZ) must precede the first or
only job card. Note that the <i> (invalid character) required in card
decks submitted at central site must be replaced by ? (question mark)
everywhere it is used.

If the card reader becomes not ready while reading, the message

    B7 DEV ERR R1

is displayed. Reading resumes when the card reader again becomes
ready.

**   READ ERRORS   **

If an illegal EBCDIC character code is detected, the message

    B7 ILC R1

is displayed. Either

- Correct the last card read and put back into hopper.
  Then enter

      RF R1

  to resume reading the job deck.

- Enter

      /ET

  to discard the job with the bad card. To read another job, enter

      /XN

***   LINE PRINTER   ***

**   Printer Errors   **

If an uncorrectable parity error occurs while printing, the message

    BZ CPAR

is displayed. The 1600 will attempt to continue. If it cannot, the message is displayed again. Either reposition the file or terminate the printing.

***   SYSTEM GENERATION PARAMETERS   ***

option	value for BZ
TERMTYP	2780
NUMRDR	1
NUMPTR	1
NUMPUN	0
HTFMT	no
AUTOANS	no
ALARM	yes
ERRMSGN	20
CCNSOL	yes
AUTOEM	yes
JOBID	BZ
CMDLOC	/
CMDRMT	;
SYNCOMM	1
ECOS	yes
PRT_BUF_LVL	1
RDR_BUF_LVL	1
PUN_BUF_LVL	1
AUTOEOT	no

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